DAVID Y. IGE
GOVERNOR

GWEN S. YAMAMOTO LAU
EXECUTIVE DIRECTOR

STATE OF HAWAII 1959 UA MAU KE EA O KA AINA I KA PONO

HAWAII GREEN INFRASTRUCTURE AUTHORITY

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March 30, 2017

The Honorable Chair and Members of the
Hawaii Public Utilities Commission
465 South King Street, First Floor
Kekuanaoa Building
Honolulu, Hawaii 96813

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PUBLIC UTILITIES COMMISSION

Dear Commissioners:

Subject: Docket No. 2014-0135 – GEMS Annual Plan

The Hawaii Green Infrastructure Authority respectfully submits this Green Energy Market Securitization Program Annual Plan for the Fiscal Year 2018: July 1, 2017 to June 30, 2018. This report fulfills the requirement for the Annual Plan in accordance with Hawaii Revised Statutes §196-64(b) and Decision and Order No. 32318, filed on September 30, 2014 in Docket No. 2014-0135.

As always, should you have any questions or if I can be of assistance to you, please do not hesitate to contact me.

Sincerely,

Gwen S. Yamamoto Lau
Executive Director

Attachment

cc: Service List

State of Hawaii

Department of Business, Economic Development & Tourism

Hawaii Green Infrastructure Authority

ANNUAL PLAN

Fiscal Year 2018: JULY 1, 2017 – JUNE 30, 2018

REPORT TO THE
STATE OF HAWAII
PUBLIC UTILITIES COMMISSION
Pursuant to:

Hawaii Revised Statutes §196-64(b)
and
Decision and Order No. 32318 filed in Docket No. 2014-0135

MARCH 2017

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1 Executive Summary

Purpose. Soon to be entering its third year, the Hawaii Green Infrastructure Authority ("HGIA" or "Authority") was created by the Legislature to make renewable energy investments accessible and affordable to Hawaii's consumers, with a portion[1] of its funds to benefit underserved communities, low- and moderate-income homeowners, renters, and non-profits. HGIA, through the GEMS program, was capitalized through an innovative market-driven financing mechanism to improve access to renewable energy infrastructure and thus advance the State's goal of achieving 100% renewable portfolio standard in the electricity sector by 2045.

Challenges. Not unexpectedly, the complex and innovative nature of the financing products needed to implement and roll-out the GEMS program has required a vigorous effort over the past two and a half years since the capitalization of the loan fund. While the Authority has executed on the original legislative intent, GEMS was designed, in large part, to address the market access challenges prevailing in 2012-2013.

As the program and financing products were being established in late 2014-2015, external factors drove significant changes in the Hawaii marketplace. Grid saturation, the rise of aggressive private-sector financing for residential solar, and subsequently the end of net energy metering have, in substantial and unanticipated ways, changed the nature of access challenges in the marketplace.

Additionally, the unanticipated loss of GEMS' tax equity partner for its Nonprofit and Small Business Loan Products resulted in the termination of these programs on December 31, 2015, just nine short months after its launch. Consequently, just as HGIA was funding its first consumer loan in January 2016, the low consumer adoption, due to its then uncompetitive and cumbersome residential loan product, coupled with the termination of its nonprofit/small business products severely negatively impacted the Authority's ability to meet initial funding expectations set in 2013.

Progress. However, 2016 has been a pivotal year as the program finally started funding loans in January, more than thirteen (13) months since bond issuance and three (3) years since the passing of Act 211. Further, product enhancements made throughout the year to its residential loan product, the launch of a new, more compelling commercial loan product, and other innovative initiatives under development, have resulted in renewed interest in GEMS financing. As of February 28, 2017, the Authority has committed some **$13.5 million** in GEMS funds for solar projects.

Opportunities. With the implementation of HGIA's On-Bill Repayment mechanism imminent, after the Hawaii Public Utilities Commission ("Commission" or "PUC") and key stakeholders devoted considerable time and resources to set the foundation and complete its framework over the last five years in Docket Nos. 2011-0186 and 2014-0129, the Authority is eager to leverage this mechanism to democratize clean energy by expanding access and affordability of

[1] Per Decision and Order 32318 filed in Docket No. 2014-0135, 51% of the loans funded should benefit the "Underserved" defined as renters, nonprofits and low and moderate-income homeowners.

renewable energy and energy efficiency to renters and low and moderate-income homeowners, as was the original intent of the legislation.

Need for Change. Dynamic changes in the global, national, and Hawaii energy markets will continue to evolve and significantly alter the landscape for infrastructure financing in the near and long-term future. As such, the models and programs originally contemplated in the initial Program Order to the Commission are no longer sufficient to achieve the projected GEMS program impact. With thoughtful and purposeful governance modifications, GEMS has the potential to play a critical role in Hawaii to foster innovative new technologies and financing models that may not yet be supported by the conventional financing market.

Docket Process Not Nimble Enough for Lending Program. A significant part of GEMS' initial deployment challenges were the result of flawed program pricing assumptions, archaic loan processes, and loan products that competed against rather than complement existing local lenders. Having made the necessary internal program corrections during the reporting period, the last remaining impediment hindering the Authority's ability to react in a nimble and timely manner to market changes and demands, is the lengthy, expensive and burdensome docket approval process, which has resulted in missed market opportunities for PV and non-PV related projects.

Currently, governance over any new lending activity requires a two-step approval process. First, through a time consuming docket process, communicating to the decision-maker via the filing of static documents such as Program Notifications, Program Modifications, comments and rebuttals or clarifications, etc., which does not allow for time sensitive, engaging or meaningful "real-time" discussions during the decision making process.

Secondly, execution is further delayed with the requirement of obtaining Board approval following Commission approval. Streamlining the decision making process would enable the Authority to react more quickly to market changes and deploy capital for green infrastructure investments in a timely manner to help meet the state's clean energy goals and objectives.

Capital for Energy Innovation. GEMS funding is uniquely positioned to have significant, positive impact in the coming years. As a market-based program, it is critical for GEMS to remain flexible and open to innovation in the rapidly evolving energy industry. As a public finance authority that uses limited public dollars to leverage private investment in clean energy, the Authority seeks to accelerate clean energy market growth while making energy cheaper and cleaner for consumers, driving job creation, and preserving taxpayer dollars. The Authority's goal is to use the GEMS funds to offer financing that attracts private investment, enabling a wider reach with each public dollar and the exponential potential for greater impacts by **recycling, re-investing and re-lending that same public dollar**.

For Fiscal Year ("FY") 2018, the Authority plans to deploy $50.0[2] million in funds through its commercial (nonprofit and small business) PV plus storage products, residential PV plus storage products, residential and commercial energy efficiency products and community solar products.

[2] This amount does not include the $46.4 million loan to the Department of Education, which requires legislative approval.

The Authority will also be leveraging an on-bill repayment mechanism that will enable renters to convert to clean energy and better accommodate the unique financial challenges of low-income households. With an administration budget of $1.0 million, a mere 2% of the projected deployment amount, the Authority continues its prudent stewardship of the GEMS fund. We remain confident that the program can be instrumental in achieving the State's energy sustainability.

2 Introduction and Background

The GEMS Program leverages public and private capital to deploy clean energy infrastructure that will contribute towards Hawaii's pursuit of its statutory 100% clean energy goals by 2045 and to help consumers lower their energy costs. Act 211 Session Laws of Hawaii 2013 ("Act 211"), created the framework for establishing the GEMS Program, including its oversight, governance, and reporting processes. The Program is governed by the Hawaii Public Utilities Commission in Docket No. 2014-0135 and the five-member Hawaii Green Infrastructure Authority, consisting of the Director of Business, Economic Development, and Tourism, the Director of Finance, the Energy Program Administrator, and two members appointed by the Governor with the advice and consent of the Hawaii State Senate.

As a part of Act 211, the Authority was established to fulfill specific duties, responsibilities and requirements.[3] As part of its statutory requirements, "the [A]uthority shall submit to the [Commission] an annual plan for review and approval no later than ninety days prior to the start of each fiscal year. The annual plan submitted by the [A]uthority shall include the [A]uthority's projected operational budget for the succeeding fiscal year."[4] The Authority therefore submits this Fiscal 2018 Annual Plan, which covers the period from July 1, 2017 to June 30, 2018 ("Annual Plan").

2.1 Introduction and Procedural History

The Commission issued and filed Decision and Order No. 32318 on September 30, 2014 in Docket No. 2014-0135 (the "Program Order") that approved the "Application of the Department of Business, Economic Development, and Tourism for an Order Approving the Green Infrastructure Loan Program," filed by the Authority ("Application") on June 6, 2014.[5] The Program Order approved the use of funds deposited in the Green Infrastructure Special

[3] Hawaii Revised Statutes ("HRS") §196-63 to §196-64.

[4] HRS §196-64(b).

[5] HRS §196-63 provides that until the Authority is duly constituted, the Department of Business, Economic Development, and Tourism of the State of Hawaii ("DBEDT") may exercise all powers reserved to the Authority pursuant to HRS §196-64, and shall perform all responsibilities of the Authority. As the Authority has now been duly constituted, the Authority assumes in its own right, pursuant to statute, all of the functions, powers, and obligations, including responsive or informational submissions in this Docket, which had heretofore been assigned to DBEDT.

Fund[6] to establish and institute the GEMS Program, subject to the modifications described within the order.[7]

As stated in the Application and paraphrased from the Preamble of Act 211, the key objectives of the GEMS Program are to:

1. Address financing market barriers to increase the installation of clean energy projects and infrastructure to meet the State's clean energy goals, including the Renewable Portfolio Standards and Energy Efficiency Portfolio Standards;
2. Democratize clean energy by expanding access and affordability of renewable energy and energy efficiency projects for identified underserved markets, while expanding the market generally;
3. Enable more ratepayers to reduce their energy use and energy costs by helping them finance clean energy improvements;
4. Partner with and support existing market entities in the clean energy and financing sector to ensure the GEMS Program can bridge market gaps and facilitate a sustainable and efficient private sector market; and
5. Balance the aforementioned goals and objectives with repayment risk to achieve an appropriate rate of return and build a sustainable financing program.

2.2 Annual Plan Requirements

The Application submitted by the Authority further defined the Annual Plan as containing "information on the budget, operations, and financial plans for the coming fiscal year."[8] The Program Order then placed requirements on the contents of the Annual Plan in addition to the statutory plan requirements in HRS §196-64(b) and the description in the Application. Specifically, the Program Order states the importance of administrative cost controls, concluding that it is part of the goal to use capital as efficiently as possible and directs the Authority to submit these as a part of its initial Annual Plan.[9] The Program Order also requires that the Authority include:

1. Summaries of all Quarterly Report information provided over the Annual Plan reporting period.[10] The Quarterly Reports also contain information required for the Annual Plan, such as:

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[6] Concurrently with the proceedings in Docket No. 2014-0135, the Commission also examined the financing structure for the issuance of the GEMS bonds in Docket No. 2014-0134 and issued Decision and Order No. 32281, the "Financing Order", that approved the Green Infrastructure Fee that was securitized for the issuance of $150,000,000 in Green Energy Market Securitization Series 2014-A Bonds on November 13, 2014. The GEMS bond sale proceeds were deposited into the Green Infrastructure Special Fund.

[7] See "Decision and Order No. 32318," filed in Docket No. 2014-0135 on September 30, 2014, at p. 1 and restated on p. 33.

[8] See "Application of the Department of Business, Economic Development, and Tourism for an Order Approving the Green Infrastructure Loan Program," filed in Docket No. 2014-0135 on June 6, 2014, at p. 17.

[9] See "Decision and Order No. 32318," filed in Docket No. 2014-0135 on September 30, 2014, at p. 39.

[10] See "Decision and Order No. 32318," filed in Docket No. 2014-0135 on September 30, 2014, at p. 95.

   a. Information on the use of GEMS funds for utility-scale projects and specifics that need to be reported in the event that GEMS funds are used for utility-scale projects.[11]
   b. A report of the "details of any failure on the part of any Deployment Partner to comply with these consumer protection policies to the [C]omission, including the number of complaints and the steps taken to address such complaints".[12]
   c. Information on utility system costs resulting from GEMS Program-funded projects.[13]
2. "[D]etailed consideration and discussion of how the green infrastructure [HGIA] proposes to finance will be successfully integrated into the grid, and how such infrastructure will continue to support the ongoing transformation of the State's electric systems over time."[14]
3. Summarized "[final] details of both the direct billing and On-bill Mechanism to be used in the GEMS Program".[15]

The Annual Plan is also a means by which the Commission may approve additional GEMS Program elements.[16] By way of this Annual Plan, the Authority is seeking approval for additional GEMS Program elements detailed in Section 5, Operational and Financing Plans for FY 2018.

3 Summary of Activities

3.1 Quarterly Report Summary

Since the filing of its last Annual Plan for Fiscal Year 2017 in March 2016, the Authority has submitted four Quarterly Reports to the Commission:

1. Quarterly Report: January 1, 2016 to March 31, 2016;
2. Quarterly Report: April 1, 2016 to June 30, 2016;
3. Quarterly Report: July 1, 2016 to September 30, 2016; and
4. Quarterly Report: October 1, 2016 to December 31, 2016

During the reporting period, the GEMS Program began funding loans and expanded its product mix. The following is a summary of the activities reported in the Quarterly Reports and filed with the Commission during the 2016 calendar year.

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[11] See "Decision and Order No. 32318," filed in Docket No. 2014-0135 on September 30, 2014, at p. 59-60.
[12] Consumer protection policies must be developed by the Authority. See "Decision and Order No. 32318," filed in Docket No. 2014-0135 on September 30, 2014, at p. 65-66.
[13] See "Decision and Order No. 32318," filed in Docket No. 2014-0135 on September 30, 2014, at p. 97.
[14] See "Decision and Order No. 32318," filed in Docket No. 2014-0135 on September 30, 2014, at p. 50.
[15] See "Decision and Order No. 32318," filed in Docket No. 2014-0135 on September 30, 2014, at p. 71.
[16] See "Decision and Order No. 32318," filed in Docket No. 2014-0135 on September 30, 2014, at p. 92, though "program elements" are not defined, the Program Order refers to "program elements" on p. 42).

3.1.1 Summary of Administration Activities

The following administrative activities were reported in the Quarterly Reports. Additional activities that occurred after December 31, 2016 are reported in Section 3.2 and will be included in the next GEMS Quarterly Report for the quarter ending March 31, 2017.

- **Board Meetings**. The Authority held the following board meetings during the reporting period:
  - January 21, 2016, at which the board approved the submission of a supplemental budget request to increase the Authority's $1.0 million administrative budget for FY 2017 by $500,000 to $1.5 million. Subsequent to this meeting, the Department of Budget and Finance ("B&F") did not recommend approval and Governor did not include the additional $500,000 requested in the Executive Supplemental Budget Request for FY 2017.
  - February 24, 2016, at which the board was scheduled to approve entering into a loan agreement with Department of Education ("DOE") and B&F. The vote was deferred pending a final term sheet between the stakeholders and Commission approval of Program Notification No. 6.
  - July 6, 2016, at which it established a Loan Committee and appointed Kalbert Young as Chair. Wesley Machida; Ryan Hamadon, Vice President & Commercial Loan Officer with First Foundation Bank; Gabe Lee, Executive Vice President of Commercial Markets with American Savings Bank; and Heather Piper, President of the Hawaii Community Reinvestment Corporation were also appointed as members of the Loan Committee.
  - September 27, 2016 where it approved changes to its Residential Loan Program lowering the interest rate to a flat 5.99% fixed and increasing the price/watt maximum to $4.50. The board also approved the rates and terms of the new Commercial PV Loan Products: Project Sponsor and Direct (which replaced the shuttered nonprofit and small business loan products).
  - December 9, 2016 where it approved an On-Bill Repayment Implementation budget.
  - December 23, 2016 where it approved the 2016 Report to the Governor and Legislature.

- **Governor's Message** No. 524 nominated Kalbert Young to the Hawaii Green Infrastructure Authority for a term to end June 30, 2018. Mr. Young was confirmed by the Hawaii State Senate on March 11, 2016.

3.1.2 Summary of Program Development and Implementation

The following program development and implementation activities were reported in the Quarterly Reports. Additional actions that occurred after December 31, 2016 are reported in Section 3.2 and will be included in the next GEMS Quarterly Report for the quarter ending March 31, 2017.

- **Metrics Reporting** – Pursuant to the directives within the Program Order,[17] HGIA submitted proposed GEMS Program Metrics to the PUC on October 21, 2014. The final GEMS Program Metrics were submitted to the Commission on December 9, 2014 with supporting documentation. In fiscal 2017, the Authority began reporting program metrics on loans funded in its report for the Quarter Ended September 30, 2016.

- **Program Notification Filings** – The Authority filed the following Program Notifications during the reporting period:
    - Program Notification No. 6 to deploy capital to government agencies for commercial energy efficiency was filed on February 23, 2016. On March 15, 2016, the Commission conditionally approved PN#6, provided that the Legislature and Governor enact legislation authorizing an appropriation out of the GEMS special fund to loan such moneys to DOE and B&F. In Conference Committee, Legislators removed GEMS financing and H.B. 2569 was signed into law (Act 176) with a $100.0 million general fund appropriation. PN#6 is null and void.
    - Program Notification No. 7 regarding deployment of capital for energy storage was filed on July 22, 2016. On August 12, 2016, the Commission suspended PN#7 pending the Authority's response to comments from the Consumer Advocate.
    - Program Notification No. 8 to broaden the definition of "Participant" under the Commercial Energy Efficiency Program was filed on July 25, 2016. On August 25, 2016, the Commission suspended PN#8 pending the Authority's response to comments from the Consumer Advocate.
    - Program Notification No. 9 to redesign the nonprofit and small business loan products shuttered on December 31, 2015 was filed on August 26, 2016. PN#9 was approved by the Commission on September 19, 2016.
    - Program Notification No. 10 to add consumers as an "Eligible Participant" for its Commercial PV Loan: Project Sponsor product was filed on November 28, 2016. On December 16, 2016, the Commission suspended PN#10 pending an informal technical conference to address the comments and concerns filed by the Consumer Advocate. On December 22, 2016, the Commission advised the Authority that it has scheduled the informal technical conference on January 4, 2017 at the Commission's Hearing Room.

- **Residential PV Loan Product** – Loans under the residential PV loan product began funding in January 2016 and aggregated almost $1.1 million at December 31, 2016. The following are product enhancements completed during the reporting period:
    - Online Application and Auto-Decisioning. In June, the Authority's loan originator, Energy Finance Solutions, added auto-decisioning to its online application simplifying the sales process for the Deployment Partners.

[17] See "Decision and Order No. 32318," filed in Docket No. 2014-0135 on September 30, 2014, at p. 90.

- Interest Rate. In September, HGIA's board approved an interest rate decrease to a flat 5.99% APR for all consumer loans. Previously, rates ranged from 6.5% to 9.875%, based on the borrower's FICO score. The lower interest rate was retroactively applied to all existing GEMS loans.
- Price per Watt Cap. In September, HGIA's board approved an increase to the price per watt cap from $4.00/watt to $4.50/watt.

- **Commercial PV Loan Product** - Clean Power Finance notified the Authority in December 2015 that it would be discontinuing its participation in the nonprofit and small business loan products due to the loss of its tax equity partner. Consequently, all marketing activities related to the program were suspended.

  Following the approval of PN#9 by the Commission, the board approved two new commercial PV loan products on September 27, 2016, Commercial PV Loan Product: Project Sponsor and Commercial PV Loan Product: Direct.

  The design of these loan structures included three objectives: (1) to collaborate and partner with commercial banks and other financial institutions; (2) to be more flexible and competitive; and (3) to fill a market gap with an unconventional financing tool. The result is a co-lending structure with a capital stack of private and public debt. This long-term financing tool is designed to complement conventional bank financing and provide low-cost, cash flow friendly capital to encourage clean energy adoption via the installation of solar photovoltaic systems.

  With the launch of these new commercial PV loan products, the Authority has experienced a renewed interest in GEMS financing receiving numerous inquiries to finance solar for nonprofits and small businesses. Based on the response thus far, the Authority is optimistic that its commercial loan products are addressing a financing need in the market while leveraging the private capital of conventional commercial lenders.

- **Commercial Energy Efficiency** – In February 2016, the Authority approved Metrus Energy ("Metrus") as a capital partner for its Commercial Energy Efficiency Product. Metrus began marketing in July 2016. The sales cycle for these projects can be lengthy due to the considerable engineering work required on the part of the borrower. The first funding from the pipeline is not expected to materialize until 2017.

- **Open Solicitation Process** - On July 14, 2016, the Authority established an Open Solicitation for Financing Arrangements process for proposals related to deployment of GEMS funds. This is consistent with best practice by Green Banks and similar State entities and provides a consistent, transparent approach to sourcing opportunities for capital deployment.

- **On-Bill Repayment** (OBR) - In May 2016, the Commission suspended its efforts to establish and implement an on-bill financing program in Docket No. 2014-0129. The order also directed the HECO Companies to work directly with the Authority to design and implement an on-bill repayment mechanism for the exclusive use of HGIA.

In late 2016, the Authority concluded that OBR is a critical tool to enable green infrastructure financing for the underserved (i.e. renters and low and moderate-income households) and began actively working with HECO and Concord Servicing Corporation, its loan servicer, on the scope and deliverables required to implement the program on the IT and loan servicing levels. The Board approved an OBR Implementation budget on December 9, 2016 for the extensive programming and testing necessary for this project. The Authority is also working on finalizing an OBR loan product. Pending Commission approval (for the OBR product) and successful testing (on the IT level), the Authority is anticipating a 2017 launch.

- **PV Plus Storage Financing** – PN#7 which would have enabled the Authority to finance storage with the installation of PV was suspended by the Commission on August 12, 2016 pending the Authority's response to comments from the Consumer Advocate ("CA").

  The Authority believes that its ability to finance storage is critical, especially given the limited interconnection options currently offered by the utility and will continue to work with the Consumer Advocate to address its concerns and seek Commission approval to finance energy storage.

- **Government Agencies** - The Authority has tabled, until further notice, the re-submission of its suspended PN#8 originally filed on July 25, 2016 to broaden the definition of Participant under the Commercial Energy Efficiency Program approved in PN#5 to include all commercial entities.

  However, in late 2016, the Authority received a request from the Department of Education ("DOE") to finance energy conservation measures ("ECM") that could result in a 25% reduction of annual energy consumption for the DOE, the second largest consumer of electricity for all State agencies. On February 22, 2017, the Commission issued Order No. 34421 approving PN#11 subject to a $60.0 million cap on deployments made to the DOE. The Authority awaits legislative approval to move forward on financing this project.

3.2 Additional Activities

The following activities represent a summary of some of the activities that have occurred since the last Quarterly Report and which have therefore not yet been reported to the Commission. These items will appear in the Authority's next quarterly report due to the Commission on April 30, 2017, covering the activities from January 1, 2017 through March 31, 2017.

- Board Meeting. The Authority held a board meeting on January 27, 2017, at which it appointed Terrence Surles, Interim Administrator of the State Energy Office as Secretary of HGIA's board. The board also delegated duties and authority to Gwen Yamamoto Lau, recently appointed Executive Director. Lastly, the board approved committing up to $9.6 million for the Molokai solar hot water project, pending Commission approval to finance residential energy efficiency and an OBR loan product, as well as the successful launch of an OBR mechanism.

- Program Notification No. 10. On January 4, 2017 the Commission held an Informal Technical Conference ("Conference") at its Hearing Room. The Conference consisted of a brief overview of PN#10 by the Authority. After the presentation, the Commission, Consumer Advocate and other Parties were provided an opportunity to ask questions of the Authority. On January 30, 2017, the Commission issued Order No. 34368 terminating the Suspension of and Approving PN#10 subject to a $3.0 million cap on deployments. On February 8, 2017, the Consumer Advocate filed a Motion for Modification of Order No. 34368 requesting that the Commission impose additional reporting and other requirements. On February 15, 2017, the Authority filed a Response in Opposition to the Consumer Advocate's Motion for Modification. A decision from the Commission is pending.
- Program Notification No. 11. On January 31, 2017, the Authority submitted PN#11 to deploy capital to the Department of Education for energy efficiency retrofits. The Consumer Advocate filed comments on February 9, 2017 and the Commission issued an information request on February 13, 2017. The Authority responded to both on February 15, 2017. On February 22, 2017, the Commission issued Order No. 34421 approving PN#11 subject to a $60.0 million cap on deployments.
- Trust Properties. On February 15, 2017, the Authority's loan originator began accepting loan applications for properties held in trust.
- Loan Approvals. On January 3, 2017, the Authority's Loan Committee approved two Commercial PV Loans aggregating $679,785 to install solar PV systems for two nonprofits. On January 27, 2017, the Authority's Board approved committing up to $9.6 million for the Molokai solar hot water project subject to the Commission's approval of residential energy efficiency financing with GEMS funds, a GEMS on-bill repayment product and the successful launch of the Authority's on-bill repayment mechanism. Additionally, as of February 28, 2017, the Authority's loan originator approved, however, has not yet funded, an additional 31 residential PV loans aggregating $1,034,433.
- Loans Funded and/or Committed. Since December 31, 2016, the Authority funded an additional ten Residential PV Loans aggregating $306,985. Additionally, it funded $288,363 of the $679,785 in commercial loans approved on January 3, 3017 to install solar PV systems for two nonprofits. As of February 28, 2017, the Authority has committed $13,581,013 in GEMS financing.

3.3 Historical Milestones and Timeline

The following is a timeline of the major GEMS events that have occurred since Act 211 was signed into law:

FY Quarter	Milestones
FY 2014 Q4: APR - JUN 2014	• Financing Order Application submitted to the PUC • Program Order Application submitted to the PUC
FY 2015 Q1: JUL - SEP 2014	• PUC approval of Financing Order • PUC approval of Program Order
FY 2015 Q2:	• Hawaii Green Infrastructure Authority constituted

OCT - DEC 2014	• Green Energy Market Securitization Bonds 2014 Series A of $150,000,000 issued • GEMS Program metrics submitted to the PUC • Program Notification #1 for nonprofit PV product and consumer PV product filed
FY 2015 Q3: JAN - MAR 2015	• Motion to Waive or Amend Qualified Source of Capital Requirements (to use PUC's on-bill mechanism) filed • Board approved entering into agreements with Deployment Partners • Nonprofit product launched
FY 2015 Q4: APR – JUN 2015	• Program Notification #2 for PV-related technologies filed. • Program Notification #3 with additional information for small business and non-profit PV products filed. • Program Notification #4 establishing consumer protection policies and describing initial deployment of funds filed. • Residential loan product launched.
FY 2016 Q1: JUL – SEP 2015	• Program Notification #5 for commercial energy efficiency product filed.
FY 2016 Q2: OCT – DEC 2015	• Nonprofit and small business products shuttered due to loss of equity partner.
FY 2016 Q3: JAN – MAR 2016	• Residential Loan product began funding its first loans. • Program Notification #6 to provide energy efficiency financing to government agencies filed. Commission approval granted subject to legislative action.
FY 2016 Q4: APR – JUN 2016	• Residential loan originator began accepting online loan applications.
FY 2017 Q1: JUL – SEP 2016	• Metrus Energy, an approved capital partner, launched its commercial energy efficiency product. • An Open Solicitation for Financing Arrangements process was established. • Program Notification #7 to deploy capital for energy storage systems filed and suspended. • Program Notification #8 to broaden definition of Participant under commercial energy efficiency program to include all commercial entities filed and suspended. • Program Notification #9 to re-design the nonprofit and small business loan products filed.
FY 2017 Q2: OCT – DEC 2016	• New commercial PV loan products for nonprofits, small businesses and for profit apartment buildings launched. • Program Notification #10 to add "Consumers" as an eligible participant filed. The Commission suspended this request pending an informal technical conference scheduled for January 4, 2017. • First commercial loans funded. • Due diligence on On-bill repayment ("OBR") mechanism commence. Authority approved OBR implementation budget.
FY 2017 Q3: JAN – MAR 2017	• Following an informal technical conference, the Commission approved PN#10 subject to a $3.0 million cap. • Program Notification #11 to deploy capital to the Department of Education for energy efficiency retrofits filed. The Commission approved PN #11 subject to a $60.0 million cap. • The Authority approved committing up to $9.6 million for the Molokai solar hot water project, subject to Commission approval of GEMS financing residential

	energy efficiency and an OBR loan product, as well as launch of the Authority's OBR mechanism. • Trust properties are now eligible under the Residential loan product.

3.4 Program Metrics

As required by the Program Order, the following Program Metrics are being provided for the first two months of Q3 2017, fiscal year-to-date and since program inception.

Energy and Environment Impact **Clean Energy Production of Projects Financed**	This Quarter: 1/1–2/28/17	FY2017 To-Date	Since Program Inception
Installed Capacity (Actual kW)	320.8	760.0	860.6
Total Annual Production (Estimated kWh)	464,433	1,149,787	1,335,259
Total Project Production Over Lifetime of Installed PV (Projected kWh) (including 0.50% degradation)	8,860,408	22,722,290	25,473,934
Electricity Reductions from Energy Efficiency Projects Financed			
Cumulative Annual Electric Energy Saved (kWh)	0	0	0
Total Resource Benefit (kWh)	0	0	0
Petroleum Displaced by Clean Energy and Energy Efficiency Projects			
Total Petroleum Displaced/Saved (Clean Energy and Energy Efficiency Projects[18]) (Estimated barrels)	285.2	731.5	820.1
Petroleum Displaced/Saved based on Annual Clean Energy Generation (Estimated barrels)	285.2	731.5	820.1
Petroleum Displaced Over Lifetime of Installed PV (Projected barrels)	5,441.8	13,955.5	15,645.5
Cumulative Annual Petroleum Saved (from efficiency)	0	0	0
Petroleum Saved from Total Resource Benefit of Efficiency Projects	0	0	0
Greenhouse Gas Avoided			
Total Greenhouse Gas Avoided[19] (Clean Energy and Energy Efficiency Projects) (Est. metric tons CO_2)	140.2	359.7	403.6
Greenhouse Gas Avoided from Clean Energy Annual Production (Estimated metric tons CO_2)	140.2	359.7	403.6
Greenhouse Gas Avoided Over Lifetime of Installed PV (Projected metric tons CO_2)	2,673.9	6,862.9	7,700.0
Greenhouse Gas Avoided from Energy Efficiency	0	0	0
Greenhouse Gas Avoided over Lifetime of Energy Efficiency Project	0	0	0

[18] Reference unitjuggler.com for conversion metric.

[19] Reference eia.gov for conversion metrics.

Economic Development Impact

GEMS Capital (Cash Basis)	This Quarter: 1/1–2/28/17	FY2017 To-Date	Since Program Inception
GEMS Revenues	$ 103,832	$ 276,765	$ 713,432
GEMS Administrative & Program Costs	$ 93,968	$ 383,643	$ 2,152,207
GEMS Loans Funded	$ 595,348	$ 2,168,890	$ 2,555,158
Total GEMS Administrative Costs and Loans	$ 689,316	$ 2,552,533	$ 4,707,365
GEMS Loans Committed, Not Yet Funded	$11,025,855	$11,025,855	$11,025,855
Projects Financed According to Technology Type/Category			
Solar Photovoltaic Systems, including advanced inverters and smart modules	12	35	47
Energy Storage	0	0	0
Lighting Upgrades	0	0	0
HVAC Upgrades	0	0	0
Mechanical Upgrades	0	0	0
Controls and Monitoring Devices	12	35	47
Energy/Water Nexus	0	0	0
Total Number of Projects	12	35	47
Indirect Economic Impact of Capital Deployed (jobs created/retained)[20]	15.2	39.4	45.3

Market Expansion Impact **Residential PV Loan Program**	This Quarter: 1/1–2/28/17	FY2017 To-Date	Since Program Inception
Total Number of GEMS Loans	10	31	43
Total Number of Loans Serving Underserved Market[21]	8	28	38
Status of Applications:			
Number of Residential PV Applications Received	25	100	290
Number of Residential PV Applications In Process	14	n/a	n/a
Number of Residential PV Applications Declined	13	38	117
Number of Residential PV Applications Withdrawn[22]	1	17	84
Number of Residential PV Applications Loan Docs Accepted	2	n/a	n/a
Geographic Location			
Number of Loans on Oahu	7	25	33
Number of Loans on Maui	2	5	9
Number of Loans on Molokai	0	0	0
Number of Loans on Lanai	0	0	0
Number of Loans on Hawaii	1	1	1

[20] Utilizing the SBA's metric of one job created or retained for every $65,000 in loans extended.

[21] See AMI distribution.

[22] While previously Conditionally Approved, loans withdrawn during the quarter may have been pending from previous quarters.

Profile of Customers

Number of Customers By Customer FICO Credit Score	This Quarter: 1/1–2/28/17	FY2017 To-Date	Since Program Inception
700 and above	6	11	14
675-699	0	10	16
650-674	2	5	7
620-649	1	3	4
600-619	1	2	2
Number of Customers By Income Distribution (self-reported by customers)			
Under $15,000	0	0	0
$15,000-$24,999	0	0	0
$25,000-$34,999	1	1	1
$35,000-$49,999	0	1	2
$50,000-$74,999	0	7	8
$75,000-$99,999	1	8	14
$100,000 and Above	8	14	18
Number of Customers by Area Median Income[23]			
<30% AMI (Extremely Low Income)	0	0	0
30% to <50% AMI (Very Low Income)	1	3	4
50% to <80% AMI (Low Income)	0	7	9
80% to <140% AMI (Moderate Income)	7	18	25
> 140% AMI	2	3	5

Commercial PV Loan Program	This Quarter: 1/1–2/28/17	FY2017 To-Date	Since Program Inception
Total Number of GEMS Loans	2	4	4
Number of Nonprofits Participating in GEMS	2	2	2
Status of Applications:			
Number of Commercial PV Applications Received	3	7	7
Number of Commercial PV Applications Approved	2	4	4
Number of Commercial PV Applications Declined	0	0	0
Number of Commercial PV Applications Withdrawn	0	0	0
Number of Commercial PV Applications Under Review	3	n/a	n/a
Number of Commercial EE Applications Received	0	0	0
Number of Commercial EE Applications Approved	0	0	0
Number of Commercial EE Applications Declined	0	0	0
Number of Commercial EE Applications Withdrawn	0	0	0
Number of Commercial EE Applications Under Review	0	0	0

[23] Area Median Income as provided by the U.S. Department of Housing and Urban Development (HUD). <30% AMI = Extremely Low Income; 30% to <50% AMI = Very Low Income; 50% to <80% AMI = Low Income; 80% to < 140% AMI = Moderate Income.

Geographic Location	This Quarter: 1/1–2/28/17	FY2017 To-Date	Since Program Inception
Number of Loans on Oahu	2	4	4
Number of Loans on Maui	0	0	0
Number of Loans on Molokai	0	0	0
Number of Loans on Lanai	0	0	0
Number of Loans on Hawaii	0	0	0
Number of Small Businesses Participating in GEMS	0	0	0
Number of Small Businesses by Gross Receipts			
Up to $9,999	0	0	0
$10,000-$24,999	0	0	0
$25,000-$99,999	0	0	0
$100,000-$499,999	0	0	0
$500,000-$999,999	0	0	0
$1,000,000-$4,999,999	0	0	0
Above $5,000,000	0	0	0
Number of Small Businesses by Average Number of Employees			
≤10 Employees	0	0	0
11-50 Employees	0	0	0
51-100 Employees	0	0	0
101-250 Employees	0	0	0
251-500 Employees	0	0	0
501-1,000 Employees	0	0	0
>1,000 Employees	0	0	0
Number of Rental Units Supported by GEMS	269	269	269
Number of Consumer Leases	0	0	0
Income Distribution of Consumer Leases (self-reported)			
Under $15,000	0	0	0
$15,000-$24,999	0	0	0
$25,000-$34,999	0	0	0
$35,000-$49,999	0	0	0
$50,000-$74,999	0	0	0
$75,000-$99,999	0	0	0
$100,000 and Above	0	0	0
Area Median Income[24] Distribution of Consumer Leases			
<30% AMI (Extremely Low Income)	0	0	0
30% to <50% AMI (Very Low Income)	0	0	0
50% to <80% AMI (Low Income)	0	0	0
80% to <140% AMI (Moderate Income)	0	0	0
> 140% AMI	0	0	0

[24] Area Median Income as provided by the U.S. Department of Housing and Urban Development (HUD). <30% AMI = Extremely Low Income; 30% to <50% AMI = Very Low Income; 50% to <80% AMI = Low Income; 80% to < 140% AMI = Moderate Income.

Cost Savings Impact	This Quarter: 1/1–2/28/17	FY2017 To-Date	Since Program Inception
Aggregate Estimated Electricity Cost Savings From Energy Production (life of system) ($)	$1,685,662	$3,269,350	$3,658,049
Average Estimated Electricity Cost Savings From Energy Production (life of system) ($) (Consumer)	$44,735	$41,866	$39,222
Average Estimated Electricity Cost Savings From Energy Production (life of system) ($) (Commercial)	$619,154	$492,876	$492,876
Average Estimated Electricity Cost Savings from Energy Efficiency ($)	0	0	0
Average System Cost per Watt for All Consumers (PV) ($)	$3.91	$3.98	$3.95
Average System Cost per Watt for Underserved Consumers (PV) ($)	$3.80	$3.97	$3.94
Average System Size for All Consumers (PV) (kW)	7.98	8.34	8.34
Average System Size for Underserved Consumers (PV) (kW)	8.35	8.59	8.59
Project Cost per Watt for All Consumers – Energy Efficiency ($)	0	0	0
Average Project Size for All Consumers – Energy Efficiency (kW)	0	0	0
Project Cost per Watt for Underserved Consumers – Energy Efficiency ($)	0	0	0
Average Project Size for Underserved Consumers – Energy Efficiency (kW)	0	0	0

4 Budgets and Administrative Cost Controls

During FY 2018, the Authority intends to deploy approximately $50.0 million in capital (see Section 5.4.) and expend approximately $1.0 million on administrative costs (see Section 4.1). The Authority anticipates future administrative costs beyond FY 2018 to be paid through interest income from loan repayments, which will enable the program to be self-sustaining.

4.1 Proposed Administrative Budget for FY 2018

HAWAII GREEN INFRASTRUCTURE AUTHORITY
ANNUAL ADMINISTRATION BUDGET FOR FY 2018

ADMINISTRATIVE STAFF		
Salaries	$	488,854
Fringe Benefits		190,154
Subtotal	$	679,008
OPERATING EXPENSES		
Supplies, Postage, and Dues	$	6,500
Telephone and Copier Expenses		5,400
Advertising and Printing		2,500
Travel Transportation & Subsistence		19,000
Training & Other Support		4,000
Other Administrative Expenses		3,592
Subtotal	$	40,992
PROGRAM SUPPORT		
Program Administration	$	125,000
Legal Services		25,000
Audit Services		80,000
Professional Services		50,000
Subtotal	$	280,000
TOTAL BUDGET	$	1,000,000

4.2 Administrative Cost Controls

Administrative costs are paid out of the Green Infrastructure Special Fund and are subject to the appropriation and allotment processes and approval procedures of the Hawaii Revised Statutes, Chapter 37, Part II. This requirement ensures legislative approval for ongoing expenses from the fund, in addition to approval by HGIA's Board and the Department of Budget and Finance.

The GEMS Program was initially designed to use existing market service providers and channels as Deployment Partners. While the use of existing market service providers reduces administrative costs as these partners already have the experience and infrastructure in place, such as IT, marketing, etc., these arrangements have also resulted in unanticipated challenges such as different time zones, unfamiliarity to situations unique to Hawaii (i.e. properties held in trust, leasehold properties, etc.), lack of commitment to the Hawaii market and a lack of priority or sense of urgency for the GEMS Program. As an example, with the downturn in the solar industry due to the discontinuation of NEM, the equity investor for the Authority's nonprofit and small business products pulled out of the Hawaii market, resulting in the shuttering of the related GEMS loan products. With the new commercial PV loan product launched at the end of last year, the Authority has found it critical to recruit seasoned lenders to actively source, underwrite and process financing requests, instead of relying on the capabilities and capacity of vendors outside the state of Hawaii.

Similarly, while the Authority's Wisconsin loan originator started accepting applications for properties held in trust on February 15, 2017, the Authority had been working on this trust properties project since October 2015. It has taken over a year for this project to come to fruition.

With the OBR implementation imminent, the Authority will be reviewing the OBR online platform created in Docket No. 2014-0129 to determine if additional streamlining, consolidation and cost reduction of the existing residential loan origination process can be achieved for greater efficiencies and more-timely loan delivery.

The Authority remains committed to operating efficiently. The State has set a precedent of restricting administrative expenses to a percentage of a fund. The statutory restriction for administrative costs for the Public Benefits Fee Administrator is 10% of the collected public benefits fees in any fiscal year.[25] The administrative expense restriction placed on the Tourism Special Fund is 5% of money in the special fund.[26] However, in the GEMS Program, there is an upfront pool of capital and continual money flow rather than annual program funds. Therefore, the traditional cost control guidelines are not applicable. Based on benchmarks from other green banks, 6-8% of initial capitalization is a reasonable expectation for administrative costs to deploy capital. The New York Green Bank has an explicit cap at 8% of initial capitalization, and we aspire to outperform this benchmark. The Authority is restricting administrative costs to 5% of the total capital during the deployment period. After the initial deployment period, cost controls will be based on the percentage of income from loan repayments. Currently, to support the $141.0 million available for deployment, the HGIA has an administrative budget of approximately $1.0 million for FY 2018.

5. Operational and Financing Plans for FY 2018 with Additional Program Elements requested

5.1 Residential Loan Portfolio

[25] HRS §269-122 (a).
[26] HRS §201B-11 (c).

5.1.1. Existing Residential PV Loan Product

This has been a pivotal year for GEMS as the program finally started funding loans in January 2016, more than thirteen (13) months since bond issuance and three (3) years since the passing of Act 211. Based on lessons learned, meaningful product enhancements have been implemented to increase the convenience and competitiveness of the Residential PV loan product, with the most recent being the acceptance of applications for properties held in trust in February 2017.

The program currently has 14 GEMS approved solar installers. Moving forward, the Authority will be proactively connecting with all of its existing approved installers on a regular and ongoing basis. Additionally, the Authority will be actively recruiting additional deployment partners during the upcoming fiscal year.

While the product has experienced an increase in loan activity, the long-term growth prospect of this residential PV loan product is limited to the remaining NEM and CGS projects in the queue. As such, the anticipated deployment for this product is $2.0 million in FY 2018.

5.1.2. Residential PV + Storage Loan Product

Due to the diminishing NEM and CGS queue, the Authority will be working with the Consumer Advocate to address its concerns in PN#7 and seek Commission approval to finance Residential PV plus Storage. PV plus Battery Storage is quickly becoming an increasingly compelling solution for consumers in today's energy market. Two simultaneous market developments are making battery storage an increasingly attractive part of a PV solution in Hawaii:

(1) Technology: battery technology, while not mature, has expanded with a variety of manufacturers now offering a competitive mix of products and economic performance. Storage prices have decreased while product warranties have been extended and replacement cost projections now amazingly affordable as there is intense competition to establish market position among early adopters.
(2) Public policy: With NEM and CGS fully subscribed, any future residential PV installations within the State will not be feasible without inclusion of a battery storage system.

Upon Commission approval, the Authority anticipates funding some $5.0 million in Residential PV + Storage loans during FY 2018.

5.1.3. Residential Energy Efficiency Loan Product

Especially for the already vulnerable low-income households, installing energy efficiency measures, such as ENERGY STAR® refrigerators or solar hot water heaters, are an effective and less expensive way to lower energy costs and convert to clean energy. The suspension of the On-Bill Financing Program in Docket No. 2014-0129, within which Hawaii Energy was to provide financing for residential energy efficiency measures ("EEM"), has resulted in a continued gap for low-cost financing of EEM.

By way of this Annual Report, the Authority is requesting an additional Program Element to add Residential Energy Efficiency measures, which may include but not be limited to ENERGY STAR® refrigerators and solar hot water heaters as an additional financing option. Please refer to Attachment A: Residential Energy Efficiency Loan Product for details.

5.1.4. On-bill Repayment Mechanism

As mentioned in Section 3.1.2., the Authority is actively working with HECO and Concord Servicing Corporation, its loan servicer, on the scope and deliverables required to implement the program on the IT and loan servicing levels.

The Authority anticipates slight modifications to its OBR loan product from what was envisioned by the Hawaii Energy Bill $aver Program, including at least a 10% bill savings (as compared to bill neutral) as well as up to an 18-year loan amortization (to allow for 24 months of accumulated vacancies over a 20-year period), as compared to a 12-year loan amortization.

By way of this Annual Report, the Authority is requesting an additional Program Element to add its OBR loan products as additional financing options. The Authority is requesting approval of its GEMS OBR loan products to finance energy efficiency and/or renewable energy technologies, subject to a minimum 10% utility bill savings for the ratepayer. Please refer to Attachment B: Residential On-Bill Repayment Loan Product and Attachment C: Commercial On-Bill Repayment Loan Product for details Anticipated deployment of GEMS funding leveraging the OBR loan products are expected to aggregate $10.0 million during FY 2018.

5.1.5. Co-lending with commercial banks

Similar to its commercial loan product, the Authority is exploring the possibility of co-lending with commercial banks for its residential loan product(s). This will enable public funds to be leveraged with private capital and provide opportunities to partner and collaborate with local lenders.

5.2. Commercial Loan Portfolio

5.2.1. Existing Commercial PV Loan Product: Project Sponsor and Direct

Since product launch a few months ago, the Authority has funded some $1.5 million in GEMS loans for projects aggregating $2.5 million in total project costs. Additionally, the Authority continues to receive inquiries on financing nonprofit and small business projects. Anticipated deployment for this product during FY 2018 is $10.0 million.

5.2.2. Commercial PV + Battery Storage Product

Similar to the scenario in Section 5.1.2., current market conditions for nonprofits, multi-family rental projects and small businesses will require the installation of storage with solar PV if consumption is outside of the solar production “duck curve.”

The Authority will be working with the Consumer Advocate to address its concerns in PN#7 and request Commission approval of GEMS financing for commercial PV plus storage. Upon Commission approval, the Authority anticipates funding some $10.0 million in Commercial PV + Storage loans during FY 2018.

5.2.3. Consumer Leases

With the approval of PN #10, the Authority is expecting to receive applications to finance consumer leases in the near future. The Authority anticipates funding $3.0 million in Consumer Leases during FY 2018, subject to the cap imposed by the Commission.

5.2.4. Commercial Energy Efficiency

The Commission approved PN#5 in 2015 to finance commercial energy efficiency through a capital deployment partner as the Authority did not have the technical skills necessary to underwrite, document and fund commercial loans at that time. With a deliberate tactical change to recruit seasoned commercial lenders, the Authority is equipped to provide direct commercial energy efficiency financing. By way of this Annual Report, the Authority is requesting an additional Program Element to add Commercial Energy Efficiency as an additional financing option under its existing Commercial Loan: Project Sponsor and Direct loan products, subject to the same savings requirement for energy efficiency in Exhibit 13. Please refer to Attachment D: Commercial EE Loan Product: Project Sponsor and Attachment E: Commercial EE Loan Product: Direct for details. The Authority anticipates funding some $5.0 million in commercial energy efficiency loans, either directly or through Metrus Energy, its capital deployment partner during FY 2018.

5.2.5. Community Solar

The Authority continues to explore opportunities in the community solar space, which we believe holds great long-term promise for GEMS funding by opening access to renewables to a much wider range of utility ratepayers. The Authority has already received inquiries to finance community solar projects and anxiously await the finalization of the CBRE program by the Commission. The Authority anticipates funding some $5.0 million for Community Solar projects during FY 2018.

5.2.6. Other

While not included in the Projected Fund Deployment and Portfolio Allocations in Section 5.4 below, with the approval of PN#11, the Authority is poised to provide $46.4 million in financing to the DOE for energy efficiency retrofits which are expected to reduce energy consumption by 25%. The deployment of GEMS capital to the DOE is subject to legislative approval.

5.3. GEMS Operations Timeline

Quarter	Target Milestones
Prior to FY 2018	• Begin financing projects with Metrus Energy • Begin financing Consumer Leases • Obtain Commission approval to finance residential energy efficiency. • Obtain Commission approval for direct financing of Commercial Energy Efficiency • Obtain Commission approval of On-bill Repayment Loan Products
FY 2018 Q1: JUL - SEP 2017	• Submission of Revised PN#7 to finance Residential PV + Storage • Submission of Revised PN#7 to finance Commercial PV + Storage • Launch Commercial and Residential EE loan products • Start accepting OBR loan applications
FY 2018 Q2: OCT - DEC 2017	• Launch Commercial and Residential PV + Battery Storage Products • HECO Companies to start processing OBR payments
FY 2018 Q3:	• Submission of Program Notification and Program Modification for Community

JAN -MAR 2018	Solar loan products
FY 2018 Q4: APR - JUN 2018	• Launch Community Solar Loan Products • Submission of Program Modification for other clean energy technologies

5.4. Projected Fund Deployment Timeline and Portfolio Allocations

The GEMS Program is focused on solar PV loans for consumers, renters, nonprofits and small businesses. However, the Authority acknowledges that grid saturation limitations in the Solar PV market as well as the limited interconnection options currently offered by the utility will require the Authority to seek approval to expand the GEMS product mix and financing options to meet the needs of the market. FY 2018 Deployment Targets are as follows:

Product Category	Deployment Amount	Comments
Residential PV	$ 2.0 Million	Existing NEM and CGS queue
Residential PV + Storage	$ 5.0 Million	Requires PUC approval to finance storage
Residential Energy Efficiency (EE)	$10.0 Million	Requires PUC approval to finance residential EE and on-bill repayment mechanism
Commercial PV	$10.0 Million	
Consumer Leases	$ 3.0 Million	Will require PUC approval to exceed $3.0 million cap
Commercial PV + Storage	$10.0 Million	Requires PUC approval to finance storage
Commercial EE	$ 5.0 Million	Via Metrus Energy and/or require PUC approval for direct financing of commercial EE
Community Solar	$ 5.0 Million	Requires PUC approval of CBRE tariff and GEMS community solar loan products
	$50.0 Million	**Total Projects Financed**

Should loan volume in the PV market not meet projections, and/or the Authority not be granted approval from the Commission for the various products itemized above, the Authority may reallocate funds between loan products and/or other projects.

6. Additional Information

6.1. Consumer Protection Policies

The Program Order directed the Authority to "provide full details of the GEMS Program consumer protection policies it develops to the [C]ommission"[27] and to "report the details of any failure on the part of any Deployment Partner to comply with these consumer protection policies to the [C]omission, including the number of complaints and the steps taken to address such complaints" in its Quarterly Reports.[28]

No complaints have been received to date regarding GEMS Deployment Partners.

[27] See "Decision and Order No. 32318," filed in Docket No. 2014-0135 on September 30, 2014, at p. 66.
[28] See "Decision and Order No. 32318," filed in Docket No. 2014-0135 on September 30, 2014, at p. 66.

6.2. Utility-Scale Project Financing

The Program Order instructed the Authority to summarize and report information about utility-scale project financing during periods where utility-scale project financing is initiated and the project is operated.[29] The Authority has not been focusing any efforts on initiating utility-scale projects during the reporting period and there are no utility-scale projects that have been financed or are currently being discussed.

6.3. Utility System Cost Information Update

The Program Order directed the Authority to "work with the HECO companies and the Consumer Advocate to determine the appropriate GEMS Program-related utility system cost information for reporting purposes, and to provide an update on the finalization of these utility system costs and impacts reporting requirements as part of DBEDT's first Quarterly Report filing."[30] Though "utility system cost" was not defined in the Program Order, the Consumer Advocate refers to these costs as costs "incurred as result of [distributed generation] PV or other clean energy projects financed by the GEMS [P]rogram."[31] Subsequent to the issuance of the Program Order, the Authority, HECO and the Consumer Advocate met to identify ways to integrate data that is currently available with data that will be obtained through monitoring and other means to quantify and analyze potential utility system costs due to distributed generation. While the Authority did not allocate any resources for this initiative during the reporting period, it will update the Commission on utility system cost information should discussions resume.

7. Conclusion

The GEMS Program represents one way the State is innovating to transform access to clean energy technologies and achieve our ambitious clean energy goals. The reporting period has been a year of major milestones for the GEMS Program and the Authority, including the funding of its first loans, both under its residential and commercial loan products.

Further, with the implementation of the On-Bill Repayment mechanism imminent, after the Commission and key stakeholders devoted considerable time and resources to set the foundation and complete its framework, the Authority is eager to leverage this mechanism to democratize clean energy by expanding access and affordability of renewable energy and energy efficiency projects for renters and low and moderate income homeowners, as was the original intent of the legislation.

GEMS funding is uniquely positioned to have significant, positive impact in the coming years. As a market-based program, it is critical for GEMS to remain flexible and open to innovation in a rapidly moving sector of the market, which requires the full empowerment and decision

[29] See "Decision and Order No. 32318," filed in Docket No. 2014-0135 on September 30, 2014, at p. 60.
[30] See "Decision and Order No. 32318," filed in Docket No. 2014-0135 on September 30, 2014, at p. 95.
[31] See "Division of Consumer Advocacy's Statement of Position," filed in Docket No. 2014-0135 on August 7, 2014, at p. 14.

making authority of HGIA's Board. We remain confident that the program can be instrumental in achieving the State's energy sustainability.

The ambitious goals of the GEMS program cannot be achieved without with the support and collaboration of the Commission, the Consumer Advocate, the electric utility and industry partners, for which the Authority is deeply grateful.

ATTACHMENT A: RESIDENTIAL ENERGY EFFICIENCY (“EE”) LOAN PRODUCT

Objective To expand access and affordability of energy efficiency equipment to consumers.

PRODUCT DESCRIPTION

Eligible Technology Solar water heating and/or solar PV plus energy efficient lighting, appliances, HVAC, and other residential EE technologies, as well as physical infrastructure to support residential EE installations.

Allowable Uses Financing is available for up to 100% of the cost of the EE improvements.

Other financeable cost may include: financing cost; energy assessments or studies, required electrical upgrades to conform to building permits; electrical permits; required electrical upgrades; and other hard cost and structural improvements.

Term Maximum term will dependent on the estimated useful life of the EE equipment being financed, not to exceed twenty (20) years.

Eligible Installers The GEMS Program, and/or its designee will maintain a list of approved installers. The borrower must use one of the installers on the GEMS approved list and also a Hawaii Energy Participating Contractor.

Collateral/Security UCC-1 financing lien and security agreement over equipment financed, as determined by the Authority.

Interest Rate Not to exceed 9.999%.

Loan Amount Minimum loan amount: $5,000. Exceptions may be granted.

Eligible Borrowers Residential property owners in the State of Hawaii served by Hawaiian Electric Company or its affiliates (collectively referred to as HECO or the Utility Company).

Eligible Properties Properties held in trust as well as fee simple or leasehold properties. Leasehold restrictions may apply.

Credit Criteria The following credit assessments may apply: consumer credit score(s); credit report assessment; utility bill assessment; and other factors.

Savings Requirement Energy savings required per Exhibit 13. Savings dependent on EE being installed and other factors.

Equipment Equipment requirements must meet minimum standards as defined by the GEMS Program and be an EE measure supported by Hawaii Energy.

REPAYMENT MECHANISMS

On-Bill Repayment On-bill repayment may be offered if available, as a repayment mechanism. However, this loan will remain the obligation of the Borrower.

Direct Bill Payment Loan repayments will be directed to the GEMS loan servicer. ACH repayment may be offered.

ATTACHMENT B: RESIDENTIAL ON-BILL REPAYMENT LOAN PRODUCT

Objective	To expand access and affordability of energy efficiency and renewable energy measures to homeowners and renters.

PRODUCT DESCRIPTION

Eligible Technology	Solar PV systems, solar thermal water heaters, and/or solar PV water heaters, advanced inverters, smart modules, monitoring devices, other technologies that support solar PV system interconnection plus ENERGY STAR® refrigerators , as well as physical infrastructure to support applicable installations.
Allowable Uses	Financing is available for up to 100% of the cost of the installations and equipment. Other financeable cost may include: financing cost; energy assessments or studies, required electrical upgrades to conform to building permits; electrical permits; required electrical upgrades; and other hard cost and structural improvements.
Capital Structure	May leverage private capital (co-lender, property owner and/or investor equity).
Term	Maximum term will dependent on the estimated useful life of the equipment being financed, not to exceed an eighteen (18) year amortization, which will allow for 24 months of accumulated vacancies. Actual loan repayment may be over a twenty (20)-year period.
Eligible Installers	For solar PV installations, installations must be completed by GEMS approved installers. For energy efficiency installations, the installer must be GEMS approved and also a Hawaii Energy Participating Contractor.
Collateral/Security	UCC-1 financing lien and security agreement over equipment financed, as determined by the Authority.
Interest Rate	Not to exceed 9.999%.
Loan Amount	Minimum loan amount: $5,000. Exceptions may be granted.
Eligible Participants	Homeowners or renters served by Hawaiian Electric Company or its affiliates.
Other Parties	Landlord and/or investor may be required to guarantee on-bill obligation.
Eligible Properties	Properties held in trust as well as fee simple or leasehold properties. Leasehold restrictions may apply.
Credit Criteria	Assessment of Participant's utility bill payment history. Exceptions may apply.
Savings Requirement	At least 10% bill savings required. If historical utility bill not available (i.e. new home), bill savings will be estimated based on industry standards and assumptions.
Equipment	Equipment requirements must meet minimum standards as defined by the GEMS Program and be an EE measure supported by Hawaii Energy.

REPAYMENT MECHANISM

On-Bill Repayment	On-bill repayment required when available.

ATTACHMENT C: COMMERCIAL ON-BILL REPAYMENT LOAN PRODUCT

Objective	To expand access and affordability of energy efficiency retrofits for small businesses, non-profit entities and multi-family rental projects on Rate Schedule G.

PRODUCT DESCRIPTION

Eligible Technology	HVAC, Lighting (LED, CFL), controls and monitoring devices, mechanical upgrades, other commercial EE technologies, Solar PV systems, advanced inverters, smart modules, monitoring devices, other technologies that support solar PV system interconnection, and physical infrastructure to support installations.
Allowable Uses	Financing is available for up to 100% of the cost of the installations and equipment. Other financeable cost may include: financing cost; energy studies/assessments, required electrical upgrades to conform to building permits; electrical permits; required electrical upgrades; and other hard cost and structural improvements.
Capital Structure	May leverage private capital (co-lender, property owner and/or investor equity).
Term	Maximum term will dependent on the estimated useful life of the equipment being financed, not to exceed an eighteen (18) year amortization, which will allow for 24 months of accumulated vacancies. Actual loan repayment may be over a twenty (20)-year period.
Eligible Installers	GEMS will conduct due diligence on a case by case basis.
Collateral/Security	Required UCC-1 financing lien and security agreement over equipment financed.
Interest Rate	Not to exceed 9.999%, tiered based on debt service coverage ratio.
Loan Amount	Minimum loan amount of $50,000 as established by GEMS. Exceptions may be granted.
Eligible Participants	Small businesses, non-profit entities and multi-family rental projects on Rate Schedule G served by Hawaiian Electric Company or its affiliates. Small businesses are defined by the standards set by the U.S. Small Business Administration (www.sba.gov/loans-grants/see-what-sba-offers/sba-loan-programs).
Other Parties	Landlord and/or investor may be required to guarantee on-bill obligation.
Eligible Properties	Fee simple or leasehold properties. Leasehold restrictions may apply.
Credit Criteria	Assessment of Participant's utility bill payment history. Exceptions may apply.
Savings Requirement	At least 10% bill savings required. If historical utility bill not available (i.e. building), bill savings will be estimated based on industry standards and assumptions.
Equipment	Equipment requirements must meet minimum standards as defined by the GEMS Program and be an EE measure supported by Hawaii Energy.

REPAYMENT MECHANISMS

On-Bill Repayment	On-bill repayment required when available.

GEMS | GEMS Financing Program

ATTACHMENT D: COMMERCIAL ENERGY EFFICIENCY LOAN PRODUCT: PROJECT SPONSOR

Objective	To expand access and affordability of energy efficiency ("EE") retrofits for small businesses, non-profit entities and multi-family rental projects.

PRODUCT DESCRIPTION

Eligible Technology	HVAC, Lighting (LED, CFL), controls and monitoring devices, mechanical upgrades, other commercial EE technologies, and physical infrastructure to support commercial EE installations.
Allowable Uses	Financing is available for up to 100% of the cost of the EE improvements. Other financeable cost may include: financing cost; energy studies/assessments, required electrical upgrades to conform to building permits; electrical permits; required electrical upgrades; and other hard cost and structural improvements.
Capital Structure	Leverages public-private capital. In addition to HGIA financing, capital sources must include bank debt and may include Project Sponsor equity.
Term	Maximum term will dependent on the estimated useful life of the EE equipment being financed, not to exceed twenty (20) years.
Eligible Installers	GEMS will conduct due diligence on a case by case basis.
Collateral/Security	Required UCC-1 financing lien and security agreement over equipment financed.
Interest Rate	Not to exceed 9.999%, tiered based on debt service coverage ratio.
Loan Amount	Minimum loan amount of $50,000 as established by GEMS. Exceptions may be granted.
Eligible Borrowers	Project Sponsors to include corporations, organizations, or individuals.
Eligible Participant	Nonprofit organizations, multi-family rental projects, and small businesses in the State of Hawaii, served by Hawaiian Electric Company or its affiliates. Small businesses are defined by the standards set by the U.S. Small Business Administration (www.sba.gov/loans-grants/see-what-sba-offers/sba-loan-programs).
Eligible Properties	Fee simple or leasehold properties. Leasehold restrictions may apply.
Credit Criteria	The following credit assessments may apply: financial statement and cash flow assessment; debt service coverage ratio; and utility bill assessment.
Savings Requirement	Energy savings required per Exhibit 13. Savings dependent on EE being installed, loan qualification, and other factors.
Equipment	Equipment requirements must meet minimum standards as defined by the GEMS Program and be an EE measure supported by Hawaii Energy.

REPAYMENT MECHANISMS

On-Bill Repayment	On-bill repayment may be offered if available, as a repayment mechanism. However, this loan will remain the obligation of the Borrower.
Direct Bill Payment	Loan repayments will be directed to the GEMS loan servicer. ACH repayment may be offered.

GEMS | GEMS Financing Program

ATTACHMENT E: COMMERCIAL ENERGY EFFICIENCY LOAN PRODUCT: DIRECT

Objective	To expand access and affordability of energy efficiency ("EE") retrofits for small businesses, non-profit entities and multi-family rental projects.

PRODUCT DESCRIPTION

Eligible Technology	HVAC, Lighting (LED, CFL), controls and monitoring devices, mechanical upgrades, other commercial EE technologies, and physical infrastructure to support commercial EE installations.
Allowable Uses	Financing is available for up to 100% of the cost of the EE improvements. Other financeable cost may include: financing cost; energy studies/assessments, required electrical upgrades to conform to building permits; electrical permits; required electrical upgrades; and other hard cost and structural improvements.
Capital Structure	Leverages public-private capital. In addition to HGIA financing, capital sources must include bank debt and may include equity.
Term	Maximum term will dependent on the estimated useful life of the EE equipment being financed, not to exceed twenty (20) years.
Eligible Installers	GEMS will conduct due diligence on a case by case basis.
Collateral/Security	Required UCC-1 financing lien and security agreement over equipment financed.
Interest Rate	Not to exceed 9.999%, tiered based on debt service coverage ratio.
Loan Amount	Minimum loan amount of $50,000 as established by GEMS. Exceptions may be granted.
Eligible Borrower	Nonprofit organizations, multi-family rental projects, and small businesses in the State of Hawaii, served by Hawaii Electric Company or its affiliates. Small businesses are defined by the standards set by the U.S. Small Business Administration (www.sba.gov/loans-grants/see-what-sba-offers/sba-loan-programs).
Eligible Properties	Fee simple or leasehold properties. Leasehold restrictions may apply.
Credit Criteria	The following credit assessments may apply: financial statement and cash flow assessment; debt service coverage ratio; and utility bill assessment.
Savings Requirement	Energy savings required per Exhibit 13. Savings dependent on EE being installed, loan qualification, and other factors.
Equipment	Equipment requirements must meet minimum standards as defined by the GEMS Program <u>and</u> be an EE measure supported by Hawaii Energy.

REPAYMENT MECHANISMS

On-Bill Repayment	On-bill repayment may be offered if available, as a repayment mechanism. However, this loan will remain the obligation of the Borrower.
Direct Bill Payment	Loan repayments will be directed to the GEMS loan servicer. ACH repayment may be offered.

SERVICE LIST

Two copies of the foregoing: GEMS Program Annual Plan in Docket No. 2014-0135, together with this Certificate of Service have been served to the following and at the following addresses:

State of Hawaii
Public Utilities Commission
465 S. King Street, #103
Honolulu, Hawaii 96813

Dean Nishina
Executive Director
Department of Commerce and Consumer Affairs
Division of Consumer Advocacy
PO Box 541
Honolulu, Hawaii 96809

Daniel G. Brown
Manager-Regulatory Non-Rate Proceedings
Hawaiian Electric Company, Inc.
Hawaii Electric Light Company, Inc.
Maui Electric Company, Ltd.
P.O. Box 2750
Honolulu, Hawaii 96840-0001

And by electronic transmission to

Warren S. Bollmeier II
President
Hawaii Renewable Energy Association
46-040 Konane Place, #3816
Kaneohe, HI 96744
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Henry Q. Curtis
Vice President for Consumer Issues
Life of the Land
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Dated: Honolulu, Hawaii, March 30, 2017.